APPENDIX A

PROPOSED COUNTS

1. A method of operating a solid fuel fired boiler, comprising:

introducing a solid fuel into the boiler;

introducing an iron-bearing material into the boiler;

introducing at least one carbon compound along with the iron-bearing material, the at least one carbon compound promoting reduction of iron oxides; and at least one of the following steps are performed:

(i) at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of second ash slag produced from combustion of the solid fuel alone; and

(ii) at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone.

2. A method of operating a solid fuel fired boiler, comprising:

introducing a solid fuel into at least one of a slag-type furnace and a wet-bottom boiler, wherein the at least one of the slag-type furnace and the wet-bottom boiler comprises:

a fuel storage bunker,

a burner,

a fuel transfer system communicating with the fuel storage bunker and the cyclone burner, and

a combustion chamber comprising an enclosure at least partially surrounding the burner,

introducing an iron-bearing material into at least one of the fuel storage bunker, the fuel transfer system, the burner, and the combustion chamber, and at least one of the following:

(i) at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of a second ash slag produced from combustion of the solid fuel alone; and

(ii) at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone.

3. A method of operating a solid fuel fired boiler, comprising:

introducing a solid fuel into at least one of a slag-type furnace and a wet-bottom boiler;

introducing an iron-bearing material into the at least one of the slag-type furnace and the wet-bottom boiler; and

at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than the same ash fusion temperature of the ash slag produced from the combustion of the solid fuel alone.

APPENDIX B

APPLICATION OF JOHNSON CLAIMS TO THE DISCLOSURE OF THE JOHNSON APPLICATION

Claim element	The Johnson disclosure (page and line)
1. A method of operating a solid fuel fired boiler, comprising:	p. 1 lines 4-11; p 3 line 10-18; p.5, lines 7-9, p. 9 line 18-22, p. 10 line 1-3; p. 12 line 13-16, p.16 line 12-22; p 17 line 1-2; p. 19 line 9-13 p. 1 lines 14-28, 25; p. 2 lines 8-9; p. 4 lines 13-14; p. 5 lines 4-6; p. 7 lines 19-21; p. 8 lines 14-15; p. 28 lines 2-4 p. 1 lines 14-28; p. 1 line 25 -p. 2 line 10; p 3 line 16, p. 6 lines 6-9; p. 10 line 3, p. 12, line 15, p. 19 line 26, p. 20 line 15; p. 28 lines 2-6.
introducing a solid fuel into the boiler;	p. 1 lines 4-11; p 3 line 10-18; p.5, lines 7-9, p. 9 line 18-22, p. 10 line 1-3; p. 12 line 13-16, p.16 line 12-22; p 17 line 1-2; p. 19 line 9-13 p. 1 lines 14-28; p. 2 lines 8-9; p. 4 lines 13-14; p. 5 lines 4-6; p. 7 lines 19-21; p. 8 lines 14-15; p. 28 lines 2-4 p. 1 line 25 -p. 2 line 10; p 3 line 16, p. 6 lines 6-9; p. 10 line 3, p. 12, line 15, p. 19 line 26, p. 20 line 15; p. 28 lines 2-6.
introducing an iron-bearing material into the boiler,	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 28 lines 4-6; p. 13 lines 19-22; p. 28 lines 2-6. p. 1 lines 5-8; p 3 line 10-18; p.5, lines 7-9, p. 9 line 18-22, p. 10 line 1-3; p. 12 line 13-16, p.16 line 12-22; p 17 line 1-2; p. 19 line 9-13

introducing at least one carbon compound along with the iron-bearing material, the at least one carbon compound promoting reduction of iron oxides; and at least one of the following steps are performed:	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 12 lines 7-19; p. 4 lines 12, 14; p. 20 lines 2-10 p. 12 lines 8-19; p. 18 lines 15-19; p. 1 lines 14-28; p. 2 lines 1-19; p. 4 lines 10-19; p. 5 lines 13-21; p. 6 lines 2-5; p. 7 lines 15-22; p. 8 lines 1-12; p. 15 lines 5-10; p. 16 lines 4-22; p. 18 lines 12-25; p. 19 lines 1-4; p. 20 lines 1-17
(i) at least partially combusting the solid fuel to produce an ash slag,	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 10-18; p. 7 lines 15-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 1-5
wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of a second ash slag produced from combustion of the solid fuel alone, and	p. 1 lines 4-11; p. 1, line 23-25; p. 2 lines 10-19; p. 3 lines 12-21; p. 4 lines 4-9; p. 5 line 13-16; p. 6 line 1-5; p. 7 lines 14-21; p. 9 line 15-16; p. 10 line 16-17; p. 11 line 1-2; p. 15 line 9-10; p. 18 lines 12-16; p. 19 lines 5-10; p. 20 lines 4-8, 11-17, 18-21; p. 28 line 4-6; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 7 lines 14-21; p. 18 line 14-16; p. 19 line 5-10
(ii) at least partially combusting the solid fuel to produce an ash slag,	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-18; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 1-5; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 line 1-3

wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of the ash slag produced by the combustion of the solid fuel alone.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 28 lines 4-6; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-18; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 1-5; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 line 1-3
2. The method of claim 1, wherein the solid fuel comprises a sub-bituminous coal	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-8, 15-18; p. 3 lines 9-10; p. 5 lines 14, 20; p. 6 lines 1-17; p. 9 lines 4-11, 17-18; p. 10 lines 14-17; p. 14 lines 12-13; p. 18 lines 17-25; p. 19 lines 1-3, 15-19; p. 20 lines 1-2, 10-17; p. 28 lines 2-3;
and the boiler is at least one of a slag-type furnace and a wet-bottom boiler.	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-20; p. 4 lines 1-3; p. 6 lines 3-18; p. 10 line 4, p. 17 line 1; p. 10 line 2, 3; p. 12 lines 13-18; p. 28 lines 2-6
3. The method of claim 1, wherein the composite ash slag has at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than 2600 degrees F.	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-18; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 1-5; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 line 1-3; p. 1, line 23-25; p. 2 lines 10-19; p. 3 lines 12-21; p. 4 lines 4-9; p. 5 line 13-16; p. 6 line 1-5; p. 7 lines 14-21; p. 9 line 15-16; p. 10 line 16-17; p. 11 line 1-2; p. 15 line 9-10; p. 18 lines 12-16; p. 19 lines 5-10; p. 20 lines 4-8, 11-17, 18-21; p. 28 line 4-6; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 2 lines 14-15; Figure 8; p. 7 lines 14-21; p. 18 line 14-16; p. 19 line 5-10

4. The method of claim 1, wherein the slag-type furnace is for at least one of steam production and electricity generation.	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-20; p. 4 lines 1-3; p. 6 lines 3-18; p. 1 line 16, p. 10 line 4, p. 17 line 1; p. 10 line 2, 3; p. 12 lines 13-18; p. 28 lines 2-6
5. The method of claim 1, wherein the boiler is a cyclone boiler.	p. 1 lines 4-11, 14-28; p. 2 lines 1-20; p. 4 lines 1-3; p. 6 lines 3-18; p. 2 line 12; p 3 line 10-18; p.5, lines 7-9, p. 9 line 18-22, p. 10 line 1-3; p. 12 lines 13-18, p.16 line 12-22; p 17 line 1-2; p. 19 line 9-13; p. 1 lines 14-28; p. 2 line 1; p. 3 lines 10-22; p. 4 line 14-15; p. 5 lines 4-7, 13-17; p. 6 line 15-19; p. 10 lines 12-15; p. 18 lines 12-16; p. 19 line 9-10; p. 20 lines 14-17; p. 28 lines 2-6
6. The method of claim 6, wherein the composite ash slag has a viscosity such that the composite ash slag flows from the boiler,	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-18; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 1-5; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 line 1-3; p. 2 line 18; p. 3 lines 12, 19, 21; p. 4 lines 5, 9; p. 5 lines 16; p. 9 line 16; p. 10 line 16; p. 11 lines 1, 3; p. 15 line 10; p. 18 lines 12, 14; p. 19 lines 5, 8; p. 20 lines 4, 11; p. 2 line 11; p. 7 lines 15-22; p. 15 line 10; p. 16 line 20; p. 19 lines 7,8; p. 20 lines 7, 17; p. 1 lines 14-28; p. 2 lines 1-20; p. 4 lines 1-3; p. 6 lines 3-18.
and wherein the iron bearing material is at least one of mill scale from steel production and dust from blast furnace gas cleaning equipment.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 13 lines 19-22; p. 12 line 7-17; p. 1 lines 14-28; p. 2 lines 1-20; p. 4 lines 1-3; p. 6 lines 3-18; p. 28 lines 2-6.
7. The method of claim 1, further comprising pulverizing the solid fuel	p. 1 lines 4-11; p. 5 lines 4, 6, 9 ; p. 1 line 14-28; p. 6 lines 12-14

prior to introducing the solid fuel into the boiler.	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-8, 15-18; p. 3 lines 9-10; p. 5 lines 14, 20; p. 6 lines 1-4, 6-17; p. 9 lines 4-11, 17-18; p. 10 lines 14-17; p. 14 lines 12-13; p. 18 lines 17-25; p. 19 lines 1-3, 15-19; p. 20 lines 1-2, 10-17; p. 28 lines 2-3; p. 1 lines 14-28; p. 2 lines 1-20; p. 4 lines 1-3; p. 6 lines 3-18.
8. Then method of claim 1, wherein the iron-bearing material comprises at least one of ferrous oxide and ferric iron oxide.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 28 lines 4-6; p. 6 lines 20-22; p. 7 lines 1-14; p. 11 lines 13-18;
9. The method of claim 1, wherein the iron-bearing material comprises magnetite.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 7 line 6-12; p. 20 lines 3, 5
10. The method of claim 1, wherein the iron-bearing material is at least one of mill scale from steel production and dust from blast furnace gas cleaning equipment.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 13 lines 19-22; p. 12 line 7-17; p. 1 lines 14-28; p. 2 lines 1-20; p. 4 lines 1-3; p. 6 lines 3-18; p. 28 lines 2-6.
11. The method of claim 1, wherein the at least a portion of the iron bearing material fluxes the ash slag to produce the ash slag.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 28 lines 4-6; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-18; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 1-5; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 line 1-3
12. The method of claim 1, wherein the boiler comprises:	p. 1 lines 4-11; p 3 line 10-18; p.5, lines 7-9, p. 9 line 18-22, p. 10 line 1-3; p. 12 line 13-16, p.16 line 12-22; p 17 line 1-2; p. 19 line 9-13

a pulverizer, wherein the solid fuel is fed to the pulverizer	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-8, 15-18; p. 3 lines 9-10; p. 5 lines 14, 20; p. 6 lines 1-4, 6-18; p. 9 lines 4-11, 17-18; p. 10 lines 14-17; p. 14 lines 12-13; p. 18 lines 17-25; p. 19 lines 1-3, 15-19; p. 20 lines 1-2, 10-17; p. 5 lines 4, 6, 9 ; p. 1 line 25; p. 6 lines 12-14
a burner	p. 1 lines 4-11; p. 1 line 14-28
a fuel transfer system communicating with the pulverizer and the burner; and	p. 1 lines 4-11; p. 1 line 14-28, p. 2 lines 1-2; Figure 1
a combustion chamber comprising an enclosure at least partially surrounding the burner.	p. 1 lines 4-11; Figure 1; p. 2, lines 2-10
13. The method of claim 5, wherein the cyclone boiler comprises:	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 line 1; p. 3 lines 10-22; p. 4 line 14-15; p. 5 lines 4-7, 13-17; p. 6 line 15-18; p. 10 lines 12-15; p. 18 lines 12-16; p. 19 line 9-10; p. 20 lines 14-17; p. 3 line 12; p. 5 line 8-9; p. 9 lines 18, 21-22; p. 10 line 1; p. 12 lines 13-16; p. 15 line 2; p. 16 lines 12, 20, 22; p. 19 lines 9, 12, 13
a fuel storage bunker;	p. 1 lines 4-11; p. 13 line 21
a cyclone burner;	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 line 1; p. 3 lines 10-22; p. 4 line 14-15; p. 5 lines 4-7, 13-17; p. 6 line 15-18; p. 10 lines 12-15; p. 18 lines 12-16; p. 19 line 9-10; p. 20 lines 14-17; Figure 1
a fuel transfer system communicating with the fuel storage bunker and the cyclone burner; and	p. 1 lines 4-11; p. 1 line 14-28, p. 2 lines 1-2; Figure 1; p. 13 line 21; p. 1 lines 22-25; p. 2 line 1; p. 3 lines 10-22; p. 4 line 14-15; p. 5 lines 4-7, 13-17; p. 6 line 15-18; p. 10 lines 12-15; p. 18 lines 12-16; p. 19 line 9-10; p. 20 lines 14-17; p. 1 line 18; Figure 1
a combustion chamber comprising an enclosure at least partially surrounding the burners.	p. 1 lines 4-11; Figure 1; p. 2, lines 2-10

14. The method of claim 1, wherein the concentration of iron-bearing material to solid fuel is from about 0.5 to about 2.5 weight percent.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 9 lines 7-8; p. 19 line 19; p. 20 lines 13-14;
15. The method of claim 1, wherein the composite ash slag has an iron concentration of at least about 15 weight percent.	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 10-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 15 lines 8, 22; p. 31 lines 3, 9; p. 33 lines 2, 10;
16. The method of claim 1, where the iron-bearing material is added to the solid fuel	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 1 lines 14-28; p. 2 lines 1-8, 15-18; p. 3 lines 9-10; p. 5 lines 14, 20; p. 6 lines 1-4, 6-18; p. 9 lines 4-11, 17-18; p. 10 lines 14-17; p. 14 lines 12-13; p. 18 lines 17-25; p. 19 lines 1-3, 15-19; p. 20 lines 1-2, 10-17; ; p. 28 lines 2-6
before introducing the solid fuel and the iron-bearing material into the boiler.	p. 1 lines 4-11; Figure 4, p. 13 lines 19-22; p. 14 lines 1-13; p. 20 lines 3-17; p. 29 lines 1-5; at p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 1 lines 14-28; p. 2 lines 1-8, 15-18; p. 3 lines 9-10; p. 5 lines 14, 20; p. 6 lines 1-4, 6-18; p. 9 lines 4-11, 17-18; p. 10 lines 14-17; p. 14 lines 12-13; p. 18 lines 17-25; p. 19 lines 1-3, 15-19; p. 20 lines 1-2, 10-17; p. 28 lines 2-6; p 3 line 10-18; p.5, lines 7-9, p. 9 line 18-22, p. 10 line 1-3; p. 12 line 13-16, p.16 line 12-22; p 17 line 1-2; p. 19 line 9-13

17. The method of claim 1, wherein the melting point of the composite ash slag is less than 2600 degrees F.	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 1, line 23-25; p. 2 lines 10-19; p. 3 lines 12-21; p. 4 lines 4-9; p. 5 line 13-16; p. 6 line 1-5; p. 7 lines 14-21; p. 9 line 15-16; p. 10 line 16-17; p. 11 line 1-2; p. 15 line 9-10; p. 18 lines 12-16; p. 19 lines 5-10; p. 20 lines 4-8, 11-17, 18-21; p. 7 lines 14-21; p. 18 line 14-16; p. 19 line 5-10; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 2 lines 14-15; Figure 8
18. The method of claim 1, wherein one of step (i) or (ii) is performed.	p. 1 lines 4-11; see claims 1, 19
19. A method of operating a solid fuel fired boiler, comprising:	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-8, 15-18; p. 3 lines 9-10; p. 5 lines 14, 20; p. 6 lines 1-4, 6-18; p. 9 lines 4-11, 17-18; p. 10 lines 14-17; p. 14 lines 12-13; p. 18 lines 17-25; p. 19 lines 1-3, 15-19; p. 20 lines 1-2, 10-17; p 3 line 10-18; p.5, lines 7-9, p. 9 line 18-22, p. 10 line 1-3; p. 12 lines 13-16, p.16 line 12-22; p 17 line 1-2; p. 19 line 9-13; p. 1 lines 18-20, 25; p. 2 lines 8-9; p. 4 lines 13-14; p. 5 lines 4-6; p. 7 lines 19-22; p. 8 lines 14-15; p. 1 lines 18-19; p. 1 line 25 -p. 2 line 10; p 3 line 16, p. 6 lines 6-9; p. 10 line 3, p. 12, line 13-17, p. 19 line 26, p. 20 line 15; p. 28 lines 2-6.
introducing a solid fuel into at least one of a slag-type furnace and a wet-bottom boiler, wherein the at least one of the slag-type furnace and the wet-bottom boiler comprises:	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-8, 15-18; p. 3 lines 9-10; p. 5 lines 14, 20; p. 6 lines 1-4, 6-18; p. 9 lines 4-11, 17-18; p. 10 lines 14-17; p. 14 lines 12-13; p. 18 lines 17-25; p. 19 lines 1-3, 15-19; p. 20 lines 1-2, 10-17; p. 2 line 12; p. 3 line 12; p. 5 line 8-9; p. 9 lines 18, 21-22; p. 10 line 1; p. 12 lines 13-16; p. 15 line 2; p. 16 lines 12, 20, 22; p. 19 lines 9, 12, 13; p. 28 lines 2-6; p. 2 lines 1-20; p. 4 lines 1-3; p. 6 lines 3-18; p. 1 line 16, p. 10 line 4, p. 17 line 1; p. 10 line 2, 3; p. 12 lines 13-18; p. 28 lines 2-6
a fuel storage bunker;	p. 1 lines 4-11; p. 13 line 21

a burner;	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 line 1; p. 3 lines 10-22; p. 4 line 14-15; p. 5 lines 4-7, 13-17; p. 6 line 15-18; p. 10 lines 12-15; p. 18 lines 12-16; p. 19 line 9-10; p. 20 lines 14-17; Figure 1
a fuel transport system communicating with the fuel storage bunker and the burner, and	p. 1 lines 4-11; p. 1 line 14-28, p. 2 lines 1-2; Figure 1; p. 13 line 21; p. 2 line 1; p. 3 lines 10-22; p. 4 line 14-15; p. 5 lines 4-7, 13-17; p. 6 line 15-18; p. 10 lines 12-15; p. 18 lines 12-16; p. 19 line 9-10; p. 20 lines 14-17; p. 1 line 18; Figure 1
a combustion chamber comprising an enclosure at least partially surrounding the burner; and	p. 1 lines 4-11; Figure 1; p. 2, lines 2-10
introducing an iron-bearing material into at least one of the fuel storage bunker, the fuel transfer system, the burner, and the combustion chamber, and at least one of the following:	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 13 lines 19-22
(i) at least partially combusting the solid fuel to produce an ash slag,	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 lines 2-6

wherein at least one ash fusion temperature characteristic is selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of a second ash slag produced from combustion of the solid fuel alone, and	p. 1 lines 4-11; p. 1, line 14-28; p. 2 lines 10-19; p. 3 lines 12-21; p. 4 lines 4-9; p. 5 line 13-16; p. 6 line 1-5; p. 7 lines 14-21; p. 9 line 15-16; p. 10 line 16-17; p. 11 line 1-2; p. 15 line 9-10; p. 18 lines 12-16; p. 19 lines 5-10; p. 20 lines 4-8, 11-17, 18-21; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 7 lines 14-21; p. 18 line 14-16; p. 19 line 5-10
(ii) at least partially combusting the solid fuel to produce an ash slag,	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 lines 2-6
wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of the ash slag produced by the combustion of the solid fuel alone.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; at p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22;
20. The method of claim 1, wherein the solid fuel comprises a sub-bituminous coal	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-8, 15-18; p. 3 lines 9-10; p. 5 lines 14, 20; p. 6 lines 1-17; p. 9 lines 4-11, 17-18; p. 10 lines 14-17; p. 14 lines 12-13; p. 18 lines 17-25; p. 19 lines 1-3, 15-19; p. 20 lines 1-2, 10-17; p. 28 lines 2-3

and the boiler is at least one of a slag-type furnace and a wet-bottom boiler.	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-20; p. 4 lines 1-3; p. 6 lines 3-18; p. 1 line 16, p. 10 line 4, p. 17 line 1; p. 10 line 2, 3; p. 12 lines 13-18; p. 28 lines 2-6
21. The method of claim 19, wherein the coal comprises a sulfur content less than about 1.5% (dry basis of the coal).	p. 1 lines 4-11; p. 3 lines 2-3; p. 6 lines 10-11;
22. The method of claim 19, wherein the melting point of the composite ash slag is less than 2600 degrees F.	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 1, line 23-25; p. 2 lines 10-19; p. 3 lines 12-21; p. 4 lines 4-9; p. 5 line 13-16; p. 6 line 1-5; p. 7 lines 14-21; p. 9 line 15-16; p. 10 line 16-17; p. 11 line 1-2; p. 15 line 9-10; p. 18 lines 12-16; p. 19 lines 5-10; p. 20 lines 4-8, 11-17, 18-21; p. 7 lines 14-21; p. 18 line 14-16; p. 19 line 5-10; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 2 lines 14-15; Figure 8
23. The method of claim 19, wherein steps (i) or (ii) is performed.	See p. 1 lines 4-11; claim 41, 59
24. A method of operating a solid fuel fired boiler, comprising:	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-8, 15-18; p. 3 lines 9-10; p. 5 lines 14, 20; p. 6 lines 1-4, 6-17; p. 9 lines 4-11, 17-18; p. 10 lines 14-17; p. 14 lines 12-13; p. 18 lines 17-25; p. 19 lines 1-3, 15-19; p. 20 lines 1-2, 10-17; p 3 line 10-18; p.5, lines 7-9, p. 9 line 18-22, p. 10 line 1-3; p. 12 lines 13-16, p.16 line 12-22; p 17 line 1-2; p. 19 line 9-13; p. 1 lines 18-20, 25; p. 2 lines 8-9; p. 4 lines 13-14; p. 5 lines 4-6; p. 7 lines 15-22; p. 8 lines 14-15; p. 1 lines 18-19; p. 1 line 25 -p. 2 line 10; p 3 line 16, p. 6 lines 6-9; p. 10 line 3, p. 12, line 13-17, p. 19 line 26, p. 20 line 15; p. 28 lines 2-6.

introducing a solid fuel into at least one of a slag-type furnace and a wet-bottom boiler;	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-8, 15-18; p. 3 lines 9-10; p. 5 lines 14, 20; p. 6 lines 1-4, 6-18; p. 9 lines 4-11, 17-18; p. 10 lines 14-17; p. 14 lines 12-13; p. 18 lines 17-25; p. 19 lines 1-3, 15-19; p. 20 lines 1-2, 10-17; p. 2 line 12; p. 3 line 12; p. 5 line 8-9; p. 9 lines 18, 21-22; p. 10 line 1; p. 12 lines 13-16; p. 15 line 2; p. 16 lines 12, 20, 22; p. 19 lines 9, 12, 13; p. 28 lines 2-6; p. 2 lines 1-20; p. 4 lines 1-3; p. 6 lines 3-18; p. 1 line 16, p. 10 line 4, p. 17 line 1; p. 10 line 2, 3; p. 12 lines 13-18; p. 28 lines 2-6
introducing an iron-bearing material into at least one of a slag-type furnace and a wet-bottom boiler,	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-8, 15-18; p. 3 lines 9-10; p. 5 lines 14, 20; p. 6 lines 1-4, 6-18; p. 9 lines 4-11, 17-18; p. 10 lines 14-17; p. 14 lines 12-13; p. 18 lines 17-25; p. 19 lines 1-3, 15-19; p. 20 lines 1-2, 10-17; p. 2 line 12; p. 3 line 12; p. 5 line 8-9; p. 9 lines 18, 21-22; p. 10 line 1; p. 12 lines 13-16; p. 15 line 2; p. 16 lines 12, 20, 22; p. 19 lines 9, 12, 13; p. 28 lines 2-6; p. 1 lines 11-15, 22-25; p. 2 lines 1-20; p. 4 lines 1-3; p. 6 lines 3-18; p. 1 line 16, p. 10 line 4, p. 17 line 1; p. 10 line 2, 3; p. 12 lines 13-18; p. 28 lines 2-6
wherein the iron bearing material is at least one of mill scale from steel production, dust from blast furnace cleaning equipment; and	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 13 lines 19-22; p. 12 line 7-17; p. 1 lines 14-28; p. 2 lines 1-20; p. 4 lines 1-3; p. 6 lines 3-18; p. 28 lines 2-6.
at least partially combusting the solid fuel to produce an ash slag, wherein in the at least partially combusting step at least one of the following is true:	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22;

(i) at least a portion of the iron-bearing material fluxes the ash slag	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 2-6
to produce a composite ash slag	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 1-5; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 line 1-3
having at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of a second ash slag produced from combustion of the solid fuel alone, and	p. 1 lines 4-11; p. 1, line 14-28; p. 2 lines 10-19; p. 3 lines 12-21; p. 4 lines 4-9; p. 5 line 13-16; p. 6 line 1-5; p. 7 lines 14-21; p. 9 line 15-16; p. 10 line 16-17; p. 11 line 1-2; p. 15 line 9-10; p. 18 lines 12-16; p. 19 lines 5-10; p. 20 lines 4-8, 11-17, 18-21; p. 28 line 4-6; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 7 lines 14-21; p. 18 line 14-16; p. 19 line 5-10

(ii) at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of the ash slag produced by the combustion of the solid fuel alone.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 28 lines 4-6; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 1-5; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 line 1-3; p. 1, line 23-25; p. 2 lines 10-19; p. 3 lines 12-21; p. 4 lines 4-9; p. 5 line 13-16; p. 6 line 1-5; p. 7 lines 14-21; p. 9 line 15-16; p. 10 line 16-17; p. 11 line 1-2; p. 15 line 9-10; p. 18 lines 12-16; p. 19 lines 5-10; p. 20 lines 4-8, 11-17, 18-21; p. 28 line 4-6
25. The method of claim 24, wherein the ash slag has a viscosity during the at least partially combusting step that is less than the viscosity of a second ash slag produced from combustion of the solid fuel alone.	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 1-5; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 line 1-3; p. 2 line 18; p. 3 lines 12, 19, 21; p. 4 lines 5, 9; p. 5 lines 16; p. 9 line 16; p. 10 line 16; p. 11 lines 1, 3; p. 15 line 10; p. 18 lines 12, 14; p. 19 lines 5, 8; p. 20 lines 4, 11; p. 31 line 7;p. 2 line 11; p. 7 lines 15-22; p. 15 line 10; p. 16 line 20; p. 19 lines 7,8; p. 20 lines 7, 17

26. The method of claim 24, wherein the ash slag has a melting point during the at least partially combusting step that is less than the melting point of a second ash slag produced from combustion of the solid fuel alone.	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 1-5; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 line 1-3; p. 1, line 23-25; p. 2 lines 10-19; p. 3 lines 12-21; p. 4 lines 4-9; p. 5 line 13-16; p. 6 line 1-5; p. 7 lines 14-21; p. 9 line 15-16; p. 10 line 16-17; p. 11 line 1-2; p. 15 line 9-10; p. 18 lines 12-16; p. 19 lines 5-10; p. 20 lines 4-8, 11-17, 18-21; p. 28 line 4-6; p. 7 lines 14-21; p. 18 line 14-16; p. 19 line 5-10; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3
27. The method of claim 24, wherein the iron-bearing material comprises at least about 1 wt. % (dry basis) mineralizer.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 28 lines 4-6; p. 8 line 19; p. 15 line 8; p. 16 line 1;
28. The method of claim 24, wherein at least about 10 wt. % (dry basis) of the iron-bearing material is wustite.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 28 lines 4-6; p.7 line 5; p. 11 line 19
29. The method of claim 24, wherein the iron-bearing material comprises from about 0.1 to about 10% of a carbon containing material.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 28 lines 4-6; p. 12 lines 7-17; p. 12 lines 8-19; p. 18 lines 15-19; p. 1 lines 14-28; p. 2 lines 1-19; p. 4 lines 10-19; p. 5 lines 13-21; p. 6 lines 2-5; p. 7 lines 15-22; p. 8 lines 1-12; p. 15 lines 5-10; p. 16 lines 4-22; p. 18 lines 12-25; p. 19 lines 1-4; p. 20 lines 1-17

30. The method of claim 31, wherein the carbon-containing compound is selected from the group consisting of a grease, an oil, and mixtures thereof.	p. 1 lines 4-11; p.12 line 7-15; p. 12 lines 8-19; p. 18 lines 15-19; p. 1 lines 14-28; p. 2 lines 1-19; p. 4 lines 10-19; p. 5 lines 13-21; p. 6 lines 2-5; p. 7 lines 15-22; p. 8 lines 1-12; p. 15 lines 5-10; p. 16 lines 4-22; p. 18 lines 12-25; p. 19 lines 1-4; p. 20 lines 1-17
31. The method of claim 24, wherein the iron-bearing material comprises an adhesive.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 28 lines 4-6; p. 13 lines 10-12
32. The method of claim 24, wherein the iron-bearing material comprises a flow aid and/or abrasive material.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 28 lines 4-6; p. 14 lines 15-22; p. 15 lines 1-4;
33. The method of claim 24, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having at least one characteristic selected from the group consisting of viscosity and melting temperature less than the same characteristic of ash slag produced by the combustion of the solid fuel alone.	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12 lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 28 lines 4-6; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 1-5; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 line 1-3; p. 1, line 23-25; p. 2 lines 10-19; p. 3 lines 12-21; p. 4 lines 4-9; p. 5 line 13-16; p. 6 line 1-5; p. 7 lines 14-21; p. 9 line 15-16; p. 10 line 16-17; p. 11 line 1-2; p. 15 line 9-10; p. 18 lines 12-16; p. 19 lines 5-10; p. 20 lines 4-8, 11-17, 18-21; p. 28 line 4-6;p. 7 lines 14-21; p. 18 line 14-16; p. 19 line 5-10; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 5 line 15; p. 16 lines 1-5; p. 7 lines 14-21; p. 9 lines 15-16, 18; p. 10 line 16, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-8, 11-17, 18-22;
34. The method of claim 25, wherein a T_{250}	p. 1 lines 4-11; p. 5 line 21-p. 6 lines 5, 18-22; p. 7 lines 1-22; p. 8 lines 3-6, 13-14; p. 9 lines 4-13; p. 11 lines 8-21; p. 12

temperature at which the ash has a viscosity of 250 poise produced from the combustion of the solid fuel and iron bearing material is at least 100 degrees Fahrenheit lower than the T_{250} temperature produced from the combustion of the solid fuel alone.	lines 7-19; p. 13 line 7-8; p. 15 line 5-8, 20-22; p. 18 line 14-16; p. 20 line 1-9; p. 28 lines 4-6; p. 19 lines 5-9; p. 20 lines 15, 18-22
35. The method of claim 25, wherein the solid fuel is coal and the coal has a sulfur content of less than about 1.5 wt.% (dry basis of the coal).	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 1-8, 15-18; p. 3 lines 9-10; p. 5 lines 14, 20; p. 6 lines 1-4, 6-17; p. 9 lines 4-11, 17-18; p. 10 lines 14-17; p. 14 lines 12-13; p. 18 lines 17-25; p. 19 lines 1-3, 15-19; p. 20 lines 1-2, 10-17; p. 28 lines 2-3; p. 3 lines 2-3; p. 6 lines 10-11;
36. The method of claim 24, wherein the melting point of the composite ash slag is less than about 2600 degrees F.	p. 1 lines 4-11; p. 1 lines 14-28; p. 2 lines 5-18; p. 3 lines 5, 6, 11-21; p. 5 line 13-16; p. 6 lines 2-5, 11-16; p. 7 lines 14-21; p. 8 lines 14-18; p. 9 lines 15-21; p. 10 lines 14-18; p. 15 lines 2-11, 18-20; p. 16 lines 11-22; p. 18 lines 12-16, 19-25; p. 19 lines 1-9; p. 20 lines 1-7, 11-18; p. 28 lines 1-5; p. 1 line 18-p. 2 line 19; p. 5 line 14-16; p. 6 lines 1-5; p. 7 lines 14-22; p. 9 lines 15-21; p. 10 line 16-17, p. 15 lines 5-18; p. 18 lines 13-16; p. 19 lines 5-10; p. 20 lines 1-22; p. 28 line 1-3; p. 1, line 23-25; p. 2 lines 10-19; p. 3 lines 12-21; p. 4 lines 4-9; p. 5 line 13-16; p. 6 line 1-5; p. 7 lines 14-21; p. 9 line 15-16; p. 10 line 16-17; p. 11 line 1-2; p. 15 line 9-10; p. 18 lines 12-16; p. 19 lines 5-10; p. 20 lines 4-8, 11-17, 18-21; p. 28 line 4-6; p. 7 lines 14-21; p. 18 line 14-16; p. 19 line 5-10; p. 4 lines 12-18; p. 5 line 13-16; p. 6 line 18-22; p. 8 line 5-14; p. 20 line 1-3; p. 2 lines 14-15; Figure 8

APPENDIX C

COMPARISON OF JOHNSON CLAIMS WITH PROPOSED COUNTS

Proposed Count	Johnson claims corresponding to the count
1. A method of operating a solid fuel fired boiler, comprising: introducing a solid fuel into the boiler; introducing an iron-bearing material into the boiler; introducing at least one carbon compound along with the iron-bearing material, the at least one carbon compound promoting reduction of iron oxides; and at least one of the following steps are performed: (i) at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of second ash slag produced from combustion of the solid fuel alone; and (ii) at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone.	**1.** A method of operating a solid fuel fired boiler, comprising: introducing a solid fuel into the boiler; introducing an iron-bearing material into the boiler; introducing at least one carbon compound along with the iron-bearing material, the at least one carbon compound promoting reduction of iron oxides; and at least one of the following steps are performed: (i) at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of a second ash slag produced from combustion of the solid fuel alone; and (ii) at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone. 2. The method of claim 1, wherein the solid fuel comprises a sub-bituminous coal and the boiler is at least one of a slag-type furnace and a wet-bottom boiler.

	3. The method of claim 1, wherein the composite ash slag has at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than 2600 degrees F. 4. The method of claim 1, wherein the boiler is for at least one of steam production and electricity generation. 5. The method of claim 1, wherein the boiler is a cyclone boiler. 6. The method of claim 6, wherein the composite ash slag has a viscosity such that the composite ash slag flows from the boiler, and wherein the iron bearing material is at least one of mill scale from steel production and dust from blast furnace gas cleaning equipment. 7. The method of claim 1, further comprising pulverizing the solid fuel prior to introducing the solid fuel into the boiler. 8. The method of claim 1, wherein the iron-bearing material comprises at least one of ferrous oxide and ferric iron oxide. 9. The method of claim 1, wherein the iron-bearing material comprises magnetite. 10. The method of claim 1, wherein the iron-bearing material is at least one of mill scale from steel production and dust from blast furnace gas cleaning equipment. 11. The method of claim 1, wherein the at least a portion of the iron bearing material fluxes the ash slag to produce the ash slag. 12. The method of claim 1, wherein the boiler comprises: a pulverizer, wherein the solid fuel is fed to the pulverizer; a burner; a fuel transfer system communicating

	with the pulverizer and the burner; and a combustion chamber comprising an enclosure at least partially surrounding the burner. 13. The method of claim 5, wherein the cyclone boiler comprises: a fuel storage bunker; a cyclone burner; a fuel transfer system communicating with the fuel storage bunker and the cyclone burner; and a combustion chamber comprising an enclosure at least partially surrounding the burners. 14. The method of claim 1, wherein the concentration of iron-bearing material to solid fuel is from about 0.5 to about 2.5 weight percent. 15. The method of claim 1, wherein the composite ash slag has a total iron concentration of at least about 15 weight percent. 16. The method of claim 1, wherein the iron-bearing material is added to the solid fuel before introducing the solid fuel and the iron-bearing material into the boiler. 17. The method of claim 1, wherein the melting point of the composite ash slag is less than 2600 degrees F. 18. The method of claim 1, wherein one of step (i) or (ii) is performed. 24. A method of operating a solid fuel fired boiler, comprising: introducing a solid fuel into at least one of a slag-type furnace and a wet-bottom boiler; introducing an iron-bearing material into the at least one of a slag-type furnace and a wet-bottom boiler, wherein the iron bearing material is at least one of mill scale from steel

	production, and dust from blast furnace gas cleaning equipment; and at least partially combusting the solid fuel to produce an ash slag, wherein in the at least partially combusting step at least one of the following is true: (i) at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than the same ash fusion temperature characteristic of the ash slag produced from combustion of the solid fuel alone; and (ii) at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone. 25. The method of claim 24, wherein the ash slag has a viscosity during the at least partially combusting step that is less than the viscosity of a second ash slag produced from combustion of the solid fuel alone. 26. The method of claim 24, wherein the ash slag has a melting point during the at least partially combusting step that is less than the melting point of a second ash slag produced from combustion of the solid fuel alone. 27. The method of claim 24, wherein the iron-bearing material comprises at least about 1 wt.% (dry basis) mineralizer. 28. The method of claim 24, wherein at least about 10 wt.% (dry basis) of the iron-bearing material is wustite. 29. The method of claim 24, wherein the

	iron-bearing material comprises from about 0.1 to about 10 wt.% of a carbon-containing compound. 30. The method of claim 31, wherein the carbon-containing compound is selected from the group consisting of a grease, an oil, and mixtures thereof. 31. The method of claim 24, wherein the iron-bearing material comprises an adhesive. 32. The method of claim 24, wherein the iron-bearing material comprises a flow aid and/or abrasive material. 33. The method of claim 24, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having at least one characteristic selected from the group consisting of viscosity and melting temperature less than the same characteristic of ash slag produced from combustion of the solid fuel alone. 34. The method of claim 25, wherein a T_{250} temperature at which the ash has a viscosity of 250 poise produced from the combustion of the solid fuel and iron-bearing material is at least 100 degrees Fahrenheit lower than the T_{250} temperature produced from the combustion of the solid fuel alone. 35. The method of claim 25, wherein the solid fuel is coal and the coal has a sulfur content of less than about 1.5 wt.% (dry basis of the coal). 36. The method of claim 24, wherein the melting point of the composite ash slag is less than 2600 degrees F.
2. A method of operating a solid fuel fired boiler, comprising: introducing a solid fuel into a cyclone boiler, wherein the cyclone boiler comprises:	19. A method of operating a solid fuel fired boiler, comprising: introducing a solid fuel into at least one of a slag-type furnace and a wet-bottom

a fuel storage bunker, a cyclone burner, a fuel transfer system communicating with the fuel storage bunker and the cyclone burner, and a combustion chamber comprising an enclosure at least partially surrounding the burner, introducing an iron-bearing material into at least one of the fuel storage bunker, the fuel transfer system, the cyclone burner, and the combustion chamber, and at least one of the following: (i) at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of a second ash slag produced from combustion of the solid fuel alone; and (ii) at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone.	boiler, wherein the at least one of the slag-type furnace and the wet-bottom boiler comprises: a fuel storage bunker, a burner, a fuel transfer system communicating with the fuel storage bunker and the burner, and a combustion chamber comprising an enclosure at least partially surrounding the burner, introducing an iron-bearing material into at least one of the fuel storage bunker, the fuel transfer system, the burner, and the combustion chamber, and at least one of the following: (i) at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of a second ash slag produced from combustion of the solid fuel alone; and (ii) at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone. 20. The method of claim 19, wherein the solid fuel is a sub-bituminous coal having a sulfur content less than about 1.5 wt.% (dry basis of the coal) and wherein the at least one of a slag-type furnace and a wet-bottom boiler is a cyclone furnace. 21. The method of claim 19, wherein the coal

	comprises a sulfur content less than about 1.5 wt.% (dry basis of the coal). 22. The method of claim 19, wherein the melting point of the composite ash slag is less than 2600 degrees F. 23. The method of claim 19, wherein steps (i) or (ii) is performed.
3. A method of operating a solid fuel fired boiler, comprising: introducing a solid fuel into a slag-type furnace; introducing an iron-bearing material into the boiler; introducing at least one carbon compound along with the iron-bearing material, the at least one carbon compound promoting reduction of iron oxides; and at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than the same ash fusion temperature of the ash slag produced from the combustion of the solid fuel alone.	**1.** A method of operating a solid fuel fired boiler, comprising: introducing a solid fuel into the boiler; introducing an iron-bearing material into the boiler; introducing at least one carbon compound along with the iron-bearing material, the at least one carbon compound promoting reduction of iron oxides; and at least one of the following steps are performed: (i) at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of a second ash slag produced from combustion of the solid fuel alone; and (ii) at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone. 2. The method of claim 1, wherein the solid fuel comprises a sub-bituminous coal and the boiler is at least one of a slag-type furnace and a wet-bottom boiler.

	3. The method of claim 1, wherein the composite ash slag has at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than 2600 degrees F. 4. The method of claim 1, wherein the boiler is for at least one of steam production and electricity generation. 5. The method of claim 1, wherein the boiler is a cyclone boiler. 6. The method of claim 6, wherein the composite ash slag has a viscosity such that the composite ash slag flows from the boiler, and wherein the iron bearing material is at least one of mill scale from steel production and dust from blast furnace gas cleaning equipment. 7. The method of claim 1, further comprising pulverizing the solid fuel prior to introducing the solid fuel into the boiler. 8. The method of claim 1, wherein the iron-bearing material comprises at least one of ferrous oxide and ferric iron oxide. 9. The method of claim 1, wherein the iron-bearing material comprises magnetite. 10. The method of claim 1, wherein the iron-bearing material is at least one of mill scale from steel production and dust from blast furnace gas cleaning equipment. 11. The method of claim 1, wherein the at least a portion of the iron bearing material fluxes the ash slag to produce the ash slag. 12. The method of claim 1, wherein the boiler comprises: a pulverizer, wherein the solid fuel is fed to the pulverizer; a burner; a fuel transfer system communicating

	with the pulverizer and the burner; and a combustion chamber comprising an enclosure at least partially surrounding the burner. 13. The method of claim 5, wherein the cyclone boiler comprises: a fuel storage bunker; a cyclone burner; a fuel transfer system communicating with the fuel storage bunker and the cyclone burner; and a combustion chamber comprising an enclosure at least partially surrounding the burners. 14. The method of claim 1, wherein the concentration of iron-bearing material to solid fuel is from about 0.5 to about 2.5 weight percent. 15. The method of claim 1, wherein the composite ash slag has a total iron concentration of at least about 15 weight percent. 16. The method of claim 1, wherein the iron-bearing material is added to the solid fuel before introducing the solid fuel and the iron-bearing material into the boiler. 17. The method of claim 1, wherein the melting point of the composite ash slag is less than 2600 degrees F. 18. The method of claim 1, wherein one of step (i) or (ii) is performed. 24. A method of operating a solid fuel fired boiler, comprising: introducing a solid fuel into at least one of a slag-type furnace and a wet-bottom boiler; introducing an iron-bearing material into the at least one of a slag-type furnace and a wet-bottom boiler, wherein the iron bearing material is at least one of mill scale from steel

	production, and dust from blast furnace gas cleaning equipment; and at least partially combusting the solid fuel to produce an ash slag, wherein in the at least partially combusting step at least one of the following is true: (i) at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than the same ash fusion temperature characteristic of the ash slag produced from combustion of the solid fuel alone; and (ii) at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone. 25. The method of claim 24, wherein the ash slag has a viscosity during the at least partially combusting step that is less than the viscosity of a second ash slag produced from combustion of the solid fuel alone. 26. The method of claim 24, wherein the ash slag has a melting point during the at least partially combusting step that is less than the melting point of a second ash slag produced from combustion of the solid fuel alone. 27. The method of claim 24, wherein the iron-bearing material comprises at least about 1 wt.% (dry basis) mineralizer. 28. The method of claim 24, wherein at least about 10 wt.% (dry basis) of the iron-bearing material is wustite. 29. The method of claim 24, wherein the

	iron-bearing material comprises from about 0.1 to about 10 wt.% of a carbon-containing compound. 30. The method of claim 31, wherein the carbon-containing compound is selected from the group consisting of a grease, an oil, and mixtures thereof. 31. The method of claim 24, wherein the iron-bearing material comprises an adhesive. 32. The method of claim 24, wherein the iron-bearing material comprises a flow aid and/or abrasive material. 33. The method of claim 24, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having at least one characteristic selected from the group consisting of viscosity and melting temperature less than the same characteristic of ash slag produced from combustion of the solid fuel alone. 34. The method of claim 25, wherein a T_{250} temperature at which the ash has a viscosity of 250 poise produced from the combustion of the solid fuel and iron-bearing material is at least 100 degrees Fahrenheit lower than the T_{250} temperature produced from the combustion of the solid fuel alone. 35. The method of claim 25, wherein the solid fuel is coal and the coal has a sulfur content of less than about 1.5 wt.% (dry basis of the coal). 36. The method of claim 24, wherein the melting point of the composite ash slag is less than 2600 degrees F.

APPENDIX D

COMPARISON OF CLAIMS 1-26 OF U.S. PATENT NO. 6,484,651
WITH THE PROPOSED COUNTS

Proposed Count	Shepard patent claims corresponding to the count
1. A method of operating a solid fuel fired boiler, comprising: introducing a solid fuel into a boiler; introducing an iron-bearing material into the boiler; introducing at least one carbon compound along with the iron-bearing material, the at least one carbon compound promoting reduction of iron oxides; and at least one of the following steps are performed: (i) at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than the same ash fusion temperature characteristic of ash slag produced from combustion of the solid fuel alone; and (ii) at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the	1. A method of operating a solid fuel fired boiler, comprising: introducing a solid fuel into the boiler; introducing an iron-bearing material into the boiler; introducing at least one carbon compound along with the iron-bearing material, the at least one carbon compound promoting reduction of iron oxides; and at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than the same ash fusion temperature characteristic of ash slag produced from combustion of the solid fuel alone. 2. The method of claim 1, wherein the solid fuel comprises coal. 3. The method of claim 1, wherein the iron-bearing material is added to the solid fuel before introducing the solid fuel and the iron-bearing material into the boiler. 4. The method of claim 1, wherein the coal has a sulfur content of less than 2% weight.

melting point of ash slag produced from the combustion of the solid fuel alone.	
2. A method of operating a solid fuel fired boiler, comprising: introducing a solid fuel into a cyclone boiler, wherein the cyclone boiler comprises: a fuel storage bunker, a cyclone burner, a fuel transfer system communicating with the fuel storage bunker and the cyclone burner, and a combustion chamber comprising an enclosure at least partially surrounding the burner, introducing an iron-bearing material into at least one of the fuel storage bunker, the fuel transfer system, the cyclone burner, and the combustion chamber, and at least one of the following: (i) at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of a second ash slag produced from combustion of the solid fuel alone; and (ii) at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having a melting point less than the melting point of ash slag produced from the combustion of the solid fuel alone.	23. A method of operating a solid fuel fired boiler, comprising: introducing a solid fuel into a cyclone boiler, wherein the cyclone boiler comprise: a fuel storage bunker, a cyclone burner, a fuel transfer system communicating with the fuel storage bunker and the cyclone burner, and a combustion chamber comprising an enclosure at least partially surrounding the burner, introducing an iron-bearing material into at least one of the fuel storage bunker, the fuel transfer system, the cyclone burner, and the combustion chamber, and (i) at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature is less than the same ash fusion temperature characteristic of a second ash slag produced from combustion of the solid fuel alone. 24. The method of claim 23, wherein the iron-bearing material is introduced into the combustion chamber through a lance inserted through an opening in the combustion chamber enclosure. 25. The method of claim 23, wherein the solid fuel is a coal having a sulfur content less than 2% by weight.
3. A method of operating a solid fuel fired	5. A method of operating a solid fuel fired

boiler, comprising: introducing a solid fuel into a slag-type furnace; introducing an iron-bearing material into the boiler; introducing at least one carbon compound along with the iron-bearing material, the at least one carbon compound promoting reduction of iron oxides; and at least partially combusting the solid fuel to produce an ash slag, wherein at least a portion of the iron bearing material fluxes the ash slag to produce a composite ash slag having at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than the same ash fusion temperature of the ash slag produced from the combustion of the solid fuel alone.	boiler, comprising: introducing a solid fuel into a slag-type furnace; introducing an iron-bearing material into the slag-type furnace, wherein the iron bearing material is at least one of iron ore beneficiation tailings, iron ore fines, pelletized blends of coal and iron-bearing material, pelletized solid fuel containing iron-bearing compounds, iron-bearing boiler ash, mill scale from steel production, dust from blast furnace gas cleaning equipment, and flue dust from sinter plants; and at least partially combusting the solid fuel to produce an ash slag, wherein at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than the same ash fusion temperature characteristic of ash slag produced from combustion of the solid fuel alone. 6. The method of claim 5, wherein the solid fuel comprises coal. 7. The method of claim 5, wherein the composite ash slag has at least one ash fusion temperature characteristic selected from the group consisting of initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature less than 2600°F. 8. The method of claim 5, wherein the slag-type furnace is for at least one of steam production and electricity generation. 9. The method of claim 5, wherein the slag-type furnace is a cyclone boiler. 10. The method of claim 5, wherein the composite ash slag has a viscosity such that the composite ash slag flows from the slag-

	type furnace. 11. The method of claim 5, further comprising pulverizing the solid fuel prior to introducing the solid fuel into the slag-type furnace. 12. The method of claim 5, wherein the iron bearing material is at least one material selected from the group consisting of iron ore beneficiation tailings, iron ore fines, pelletized iron ore, pelletized solid fuel containing at least one iron-bearing compound, iron-bearing boiler ash, mill scale from steel production, flue dust from blast furnace gas cleaning equipment, and flue dust from sinter plants. 13. The method of claim 5, wherein the iron-bearing material comprises at least one of ferric oxide, ferrous oxide, and neutral iron. 14. The method of claim 5, wherein the iron-bearing material comprises at least one of hematite, taconite, and magnetite. 15. The method of claim 5, wherein the iron-bearing material comprises at least one carbon compound. 16. The method of claim 5, further comprising introducing at least one carbon compound along with the iron-bearing material, the at least one carbon compound promoting reduction of iron oxides. 17. The method of claim 5, where the slag-type furnace comprises: a pulverizer, wherein the solid fuel is fed to the pulverizer; a burner; a fuel transfer system communicating with the pulverizer and the burner; and a combustion chamber comprising an enclosure at least partially surrounding the burner. 18. The method of claim 9, wherein the

	cyclone boiler comprises: a fuel storage bunker; a cyclone burner; a fuel transfer system communicating with the fuel storage bunker and the cyclone burner; and a combustion chamber comprising an enclosure at least partially surrounding the burners. 19. The method of claim 5, wherein the concentration of iron-bearing material to solid fuel is from 1 to 25 weight percent of the total of the iron-bearing material and the solid fuel introduced into the slag-type furnace. 20. The method of claim 5, wherein the composite ash slag has a total iron concentration of 15 to 30 weight percent. 21. The method of claim 5, wherein the iron-bearing material is added to the solid fuel before introducing the solid fuel and the iron-bearing material into the slag-type furnace. 22. The method of claim 5, further comprising: adjusting the particle size distribution of the iron-bearing material. 26. The method of claim 6, wherein the coal comprises a sulfur content less than 2% by weight.